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Filed via ECFS

April 30, 2010

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

> Re: ET Docket No. 04-186, Unlicensed Operation in the TV Broadcast Bands
> *Ex Parte* Presentation

Dear Ms. Dortch:

On April 29, 2010, Tom Patton, Vice President, Government Relations, Philips Electronics North America and Monisha Ghosh, Principal Member, Research Staff, Philips Research North America and the undersigned met with Julius Knapp, Alan Stillwell, Ira Keltz, Bruce Romano, Rashmi Doshi, Geraldine Matise, and Hugh Van Tuyl of the Office of Engineering and Technology to discuss issues in the above-referenced proceeding. The discussion centered on the sensing requirements in the Commission's Rules for white space devices. The benefits of utilizing sensing in white space devices to avoid interference, improvements in sensing technology, and activities in various industry and standardization bodies were addressed. Attached are the slides used during the meeting on these issues.

This letter is being filed electronically in the above docket.

Respectfully,

David R. Siddall
Counsel to Philips Electronics North America

Enclosure
cc: Julius Knapp
      Alan Stillwell
      Ira Keltz
      Bruce Romano
      Rashmi Doshi
      Geraldine Matise
      Hugh Van Tuyl
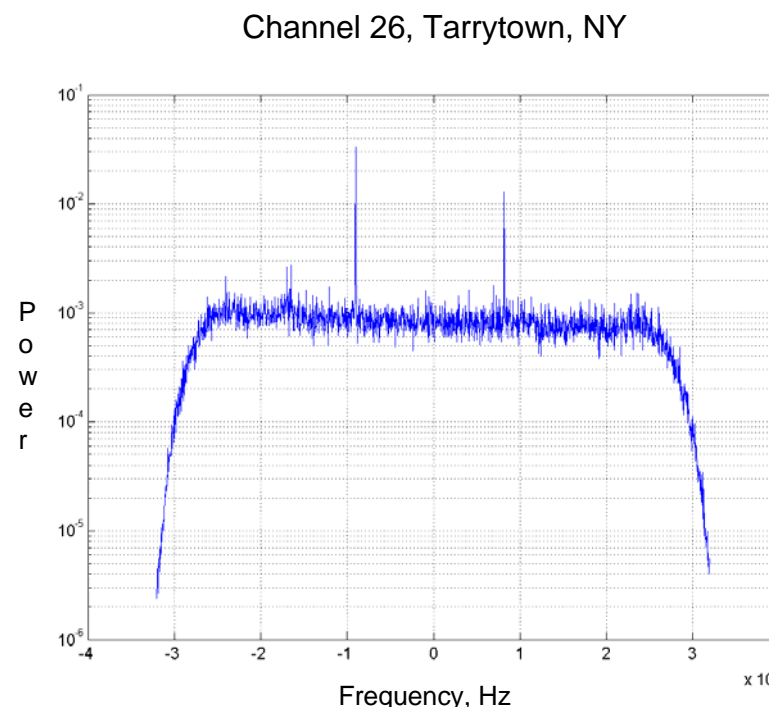
TV White Spaces

April 29, 2010

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Topics

- Sensing for Wireless Microphones

  – Improved algorithms reduce false alarms in the field while maintaining 100% detection at -114 dBm.

- Sensing complements geolocation/databases.

- Industry activity in TV White Spaces:

  – CogNeA Alliance

  – Ecma 392 standard.

- TV White Spaces activities worldwide:

  – CEPT (SE 43)

 – Ofcom.

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Sensing for Wireless Microphones

- Algorithmic improvements reduce false alarms in field by 50 – 100%. Ongoing work to improve performance further, without impacting detection capability at -114 dBm.

- Example 1: Channel 26 at a location in Tarrytown, NY:
  - This channel is available, according to www.showmywhitespaces.com and FCC database.
  - Old algorithm would declare this to be occupied.
  - Improved algorithm does not.

Channel 26, Tarrytown, NY

Frequency, Hz

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Sensing for Wireless Microphones: Example 2

- Example 2: Channel 46 at a location in Chappaqua, NY:
  - This channel is available, according to www.showmywhitespaces.com and FCC database.
  - Old algorithm would declare this to be occupied.
  - Improved algorithm does not.

Channel 46, Chappaqua, NY

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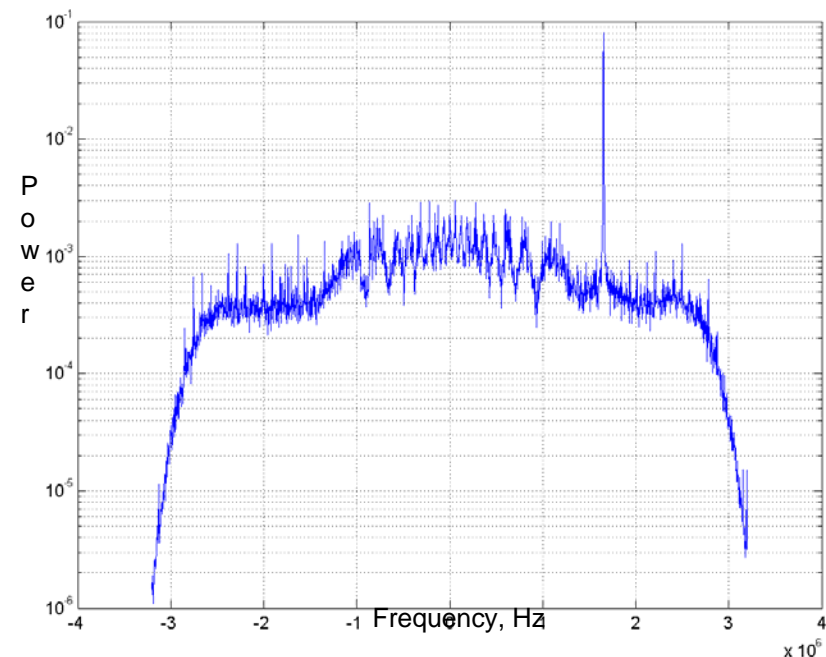
Sensing complements geolocation/database

- Protection of wireless microphone
  - Relying only on geolocation/databases will not protect licensed but unregistered wireless microphones.

- TV band devices should not be further constrained
  - More frequent access to databases (much beyond that currently required by the Rules) would add complexity and costs to TV band devices.
  - Failure to access databases in a timely manner, such as might be caused by a network or server failure, would bring down the TV band device network, an issue if more frequent access to TV band databases is mandated.
  - Mode 1 devices should not be required to implement geolocation/databases.

- Sensing complements geolocation/databases
  - Mandatory sensing serves an extremely useful purpose as a "sanity check" on the accuracy of databases.
  - Sensing provides a mechanism to reuse spectrum when a wireless microphone registers but fails to use a channel at any given location and time.

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Industry Activity: CogNeA

- CogNeA: Cognitive Networking Alliance (www.cognea.com)
  - The Alliance was announced on December 16, 2008.

- Members:
  - ETRI (p), HP (p), Philips (p), Samsung Electro-Mechanics (p), British Telecom (p), Cambridge Consultants (c), Maxlinear (c) Georgia Electronic Design Center (GEDC) at Georgia Institute of Technology (c) and Motorola (c).

- The technical specification was transferred to Ecma International in March 2009 for further development. Ecma 392 was published in December 2009.

- CogNeA continues to build the ecosystem for White Space applications.

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Ecma 392

- Scope: Wireless communications using TVWS
  - Physical Layer (RF and Baseband)
  - MAC layer (Media Access Control)
  - Protocol and mechanisms for coexistence
  - http://www.ecma-international.org/publications/standards/Ecma-392.htm

- The Ecma Standard aims to serve a broad range of applications, including multi-media distribution and internet access
  - Personal/portable device types operating in TV white spaces
  - Robust support for real-time traffic
  - Efficient design, even for long-range applications

- Adaptation to worldwide regulatory requirements
  - This standard takes a toolbox approach, can work with sensing and/or geolocation/databases.

TV White Spaces activities worldwide

- Europe: SE 43 group in CEPT is working on a document to define protection criteria for incumbents through sensing and geolocation/databases.

- UK: Ofcom has released consultations on sensing and geolocation/databases.

- Philips is an active contributor to the above discussions.